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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,206	11/02/2001	Nicolo F. Machi	040-98-004GCIP	9126

7590 03/10/2005

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EXAMINER

QUASH, ANTHONY G

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

K.A

Office Action Summary	Application No.	Applicant(s)	
	10/000,206	MACHI, NICOLO F.	
	Examiner	Art Unit	
	Anthony Quash	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said lamp head" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4,6-7,10-11,23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins [3,805,347]. As per claims 1, Collins [3,805,347] teaches a light assembly comprising a thermally conductive housing (housing made of metal, which the examiner recognizes as being thermally conductive, since that is one of the properties of metals, 18, also see col. 2 lines 20-40), the housing having a bottom portion (12), and top portion (21), an interior surface of the housing defining a hollow (figs. 1-2), and exterior surface of the housing be an exterior surface (18) of the lighting

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assembly, a thermally conductive base (12, bottom piece being made of metal which the examiner recognizes as being thermally conductive, since that is one of the properties of metals , also see col. 2 lines 20-40), the base composed of a single thermally conductive material, an exterior surface of the base being another exterior surface of the light assembly, at least one light emitting diode (11) attached to an interior surface of the base (12), and the light being non-directional (see fig. 2), at least one collimating lens (21, collimates the beam see col. 2 lines 65-68), connected to the top portion of the housing, the collimating lens (21) adapted to collimate light to produce an a beam of light output from the light assembly, wherein the light radiates in a direct path through the hollow, the direct path leading from the diode (11) to the collimating lens (21), and the base (12) directly transfers heat generated by the light emitting diode to the exterior of the light assembly. Although Collins [3,805,347] does not explicitly state that the diode is infrared, it does teach that the device is in the field of solid state lamp assemblies and that such lamps usually emit visible or infrared light. See Collins [3,805,347] col. 1 lines 10-15. Therefore the examiner recognizes this as being equivalent to stating that the light emitting diode being and an infrared light emitting diode.

As per claim 2, Collins [3,805,347] teaches all aspects of the claim except for explicitly stating that the metal housing and base be comprised of aluminum. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the metal housing and base be comprised of aluminum, since it has been

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held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

As per claim 3, Collins [3,805,347] teaches the housing being substantially cylindrical. See Collins [3,805,347] fig. 1, and col. 2 lines 20-35.

As per claim 4, Collins [3,805,347] teaches the housing being integrally connected to the housing. See Collins [3,805,347] col. 2 lines 30-40.

As per claim 7, Collins [3,805,347] teaches all aspects of the claim except for the light assembly being adapted to provide infrared light having a NVIS radiant intensity greater than about 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light assembly be adapted to provide infrared light having a NVIS radiant intensity greater than about 2, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As per claim 10, Collins [3,805,347] teaches all aspects of the claim except for explicitly stating that the power requirement of the light assembly being in the range from about 10 watts to about 20 watts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the power requirement of the light assembly be in the range from about 10 watts to about 20 watts, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As per claim 11, Collins [3,805,347] teaches (as understood by the examiner) the light assembly being a unit located with the lamp head.

As per claim 23, Collins [3,805,347] teaches all aspects of the claim except for explicitly stating that the collimating lens be an aspheric lens. Collins [3,805,347] does teach the lens (21) collimating the beam. See Collins [3,805,347] col. 2 lines 65-68. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens assembly in Collins [3,805,347], since it performs the same function as the aspheric lens in applicant's invention.

As per claim 6, Collins [3,805,347] teaches the lens having a substantially flat inner surface and a convex outer surface. See Collins [3,805,347] fig. 2.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Collins [3,805,347] in view of Houseman [4,738,534]. As per claim 5, Collins [3,805,347] teaches all aspect of the claim except for explicitly stating the aspheric lens having a focal point, and the light emitting diode being offset slightly from the focal point. Houseman [534] does teach the aspheric lens having a focal point, and that the IR diode is slightly offset from the focal point. See Houseman [534] col. 6 lines 10-25. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the aspheric lens have a focal point, and that the IR diode be slightly offset from the focal point in order to reduce sensitivity to misalignment as taught in Houseman [4,738,534].

Claims 8-9,12-16,18-22,24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins [3,805,347] in view of Johnson [4,267,559]. As per claim 12, Collins [3,805,347] teaches a light assembly comprising a thermally conductive housing (housing made of metal, which the examiner recognizes as being thermally conductive,

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since that is one of the properties of metals, 18, also see col. 2 lines 20-40), the housing having a bottom portion (12), and top portion (21), an interior surface of the housing defining a hollow (figs. 1-2), and exterior surface of the housing be an exterior surface (18) of the lighting assembly, a thermally conductive base (12, bottom piece being made of metal which the examiner recognizes as being thermally conductive, since that is one of the properties of metals , also see col. 2 lines 20-40), the base composed of a single thermally conductive material, an exterior surface of the base being another exterior surface of the light assembly, at least one light emitting diode (11) attached to an interior surface of the base (12), and the light being non-directional (see fig. 2), at least one collimating lens (21, collimates the beam see col. 2 lines 65-68), connected to the top portion of the housing, the collimating lens (21) adapted to collimate light to produce an a beam of light output from the light assembly, wherein the light radiates in a direct path through the hollow, the direct path leading from the diode (11) to the collimating lens (21), and the base (12) directly transfers heat generated by the light emitting diode to the exterior of the light assembly. Although Collins [3,805,347] does not explicitly state that the diode is infrared, it does teach that the device is in the field of solid state lamp assemblies and that such lamps usually emit visible or infrared light. See Collins [3,805,347] col. 1 lines 10-15. Therefore the examiner recognizes this as being equivalent to stating that the light emitting diode being and an infrared light emitting diode. However, Collins [3,805,347] does not teach at least one thermal electric cooler connected to the light emitting diode, the at least one thermal electric cooler being adapted to dissipate heat generated by the light emitting diode. Johnson [4,267,559]

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does teach at least one thermal electric cooler connected to the light emitting diode, the at least one thermal electric cooler being adapted to dissipate heat generated by the light emitting diode. See Johnson [4,267,559] abstract, fig. 1, col. 1 line 10-15, 48-65, col. 2 lines 8-15, 20-33, 50-55, **59-69**, col. 3 lines 20-30, 45-55. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have at least one thermal electric cooler connected to the light emitting diode, the at least one thermal electric cooler being adapted to dissipate heat generated by the light emitting diode in order to prevent degradation in performance of the LED due to rises in temperature.

As per claim 13, Collins [3,805,347] in view of Johnson [4,267,559] teaches all aspects of the claim except for explicitly stating the at least thermal electric cooler being positioned between the base and the light emitting diode. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the at least thermal electric cooler be positioned between the base and the light emitting diode, since it has been held that rearranging parts of an invention involves only routine skill in the art.

As per claim 14, Johnson [4,267,559] teaches the housing and base being comprised of aluminum. See Johnson [4,267,559] col. 3 lines 20-30.

As per claim 15, Collins [3,805,347] teaches the housing being substantially cylindrical. See Collins [3,805,347] fig. 1, and col. 2 lines 20-35.

As per claim 16, Collins [3,805,347] teaches the housing being integrally connected to the housing. See Collins [3,805,347] col. 2 lines 30-40. Also see Johnson [4,267,559] fig. 1.

As per claim 24, Collins [3,805,347] teaches all aspects of the claim except for explicitly stating that the collimating lens be an aspheric lens. Collins [3,805,347] does teach the lens (21) collimating the beam. See Collins [3,805,347] col. 2 lines 65-68. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens assembly in Collins [3,805,347], since it performs the same function as the aspheric lens in applicant's invention.

As per claim 18, Collins [3,805,347] teaches the lens having a substantially flat inner surface and a convex outer surface. See Collins [3,805,347] fig. 2.

As per claim 19, Collins [3,805,347] teaches all aspects of the claim except for the light assembly being adapted to provide infrared light having a NVIS radiant intensity greater than about 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light assembly be adapted to provide infrared light having a NVIS radiant intensity greater than about 2, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As per claim 21, Collins [3,805,347] teaches all aspects of the claim except for explicitly stating that the power requirement of the light assembly being in the range from about 10 watts to about 20 watts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the power requirement of the

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light assembly be in the range from about 10 watts to about 20 watts, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As per claim 22, Collins [3,805,347] teaches (as understood by the examiner) the light assembly being a unit located with the lamp head.

As per claims 8,20, Collins [3,805,347] teaches all aspects of the claim except for explicitly stating the assembly substantially maintains a predetermined operating temperature such that the peak emission of the light emitting diode is substantially maintained. Johnson [4,267,559] does teach the assembly substantially maintaining a predetermined operating temperature such that the peak emission of the light emitting diode is substantially maintained. See Johnson [4,267,559] col. 1 lines 48-62, col. 2 lines 28-40, 50-55.

As per claim 9, Collins [3,805,347] in view of Johnson [4,267,559] teach all aspects of the claim except for explicitly stating that the peak emission of the light emitting diode being substantially maintained at about 880 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the peak emission of the light emitting diode be substantially maintained at about 880 nm, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Collins [3,805,347] in view Johnson [4,267,559] and further in view of Houseman [4,738,534]. As per claim 17, Collins [3,805,347] teaches all aspect of the claim except for explicitly

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stating the aspheric lens having a focal point, and the light emitting diode being offset slightly from the focal point. Houseman [4,738,534] does teach the aspheric lens having a focal point, and that the IR diode is slightly offset from the focal point. See Houseman [534] col. 6 lines 10-25. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the aspheric lens have a focal point, and that the IR diode be slightly offset from the focal point in order to reduce sensitivity to misalignment as taught in Houseman [4,738,534].

Response to Arguments

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection. Should the applicant have any questions, the applicant is welcomed to schedule an interview with the examiner.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,500,768 to Doggett et al is considered pertinent due to its discussion on a laser diode/lens assembly. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (571)-272-2480. The examiner can normally be reached on Monday thru Friday 9 a.m. to 5 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571)-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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a.2.
3/5/05

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03/07/05